

Special Interest Station Updates

2017, Q1

[Feb. 13, 2017]: On Friday, Feb. 10, it was determined that a motor sent off site for repair contained a small amount of tritiated water and surface contamination within the motor casing. OPG staff cleaned up the water, placed the motor in a safe state and returned it to Darlington Nuclear Generating Station. Subsequent surveys were normal. The Canadian Nuclear Safety Commission was notified.

There was no impact to employees, the public or the environment.

Units 3 and 4 are operating at full power. Unit 1 is in a maintenance outage. Unit 2 is undergoing refurbishment.

2016, Q3

[Aug. 28, 2016]: On the afternoon of Sunday, Aug. 27, as directed by the Independent Electricity System Operator, Darlington unit 1 was powered down. During the time of powering the unit down, near-site residents may have witnessed larger than normal amounts of steam.

This steam does not pose any threat to employee or public safety and has no environmental impact.

Unit 1 is operating at 59 per cent, while units 2, 3 and 4 are operating at full power.

[Aug. 12, 2016]: On Wednesday, Aug. 10, 2016, a sub-contractor at the Darlington station received a minor electrical shock.

A 9-1-1 call was placed, site Emergency Responders attended and an ambulance entered the site with lights flashing. Although the worker was reported to be in good condition, as a precaution they were transported to a nearby hospital.

The worker returned for work with no restrictions the next day.

[Aug. 2, 2016]: On Monday, Aug. 1, field operators reported a small oil leak from a breathing air compressor at the Pickering station.

Approximately 8 litres of oil from the compressor leaked into a station floor drain. Operators safely shut down the breathing air compressor and initiated a clean-up.

The spill was determined to be a Category C spill and was reported to the Ministry of Environment.

[July 6, 2016]: During routine maintenance at Pickering Nuclear, a contained leak of liquid hydrazine was reported on Unit 7. A team was mobilized to clean the affected area. Subsequent test results were within normal limits.

There were no known impacts on the safety of employees, the public or the environment. There was no threat to the safe operation of the plant.

Units 1, 4, 5, and 6 are operating at full power. Units 7 and 8 are undergoing maintenance outages.

2016, Q2

[June 6, 2016]: During routine maintenance at Darlington Nuclear, an employee tripped and fell, injuring their wrist. Following assessment, the employee returned to work with modified duties.

Units 1, 2, and 3 are operating at full power. Unit 4 is undergoing a maintenance outage. There was no impact on the safety of the public, employees or the environment.

[April 7, 2016]: During routine inspections at Darlington Nuclear, non-treated wood was discovered improperly stored as per Darlington's fire prevention program. The wood was removed for storage in an appropriate area.

Units 1, 2, 3, and 4 are operating at full power. There was no impact on the safety of the public, employees or the environment.

2016, Q1

[March 8, 2016]: Results from regular sampling of Pickering's Reactor Building Service Water system indicated activity levels for the week of March 2 were slightly elevated, causing an exceedance of the monthly CNSC Action Level. Subsequent samples were within normal limits.

Units 1, 5, 6, and 7 are operating at full power. Units 4 and 8 are in planned maintenance outages.

There was no impact on the safety of the public, employees or the environment.

2015, Q4

[Dec. 7, 2015]: On the afternoon of Friday, Dec. 4, Unit 1 at Darlington Nuclear shut down automatically as the result of a heat transport pump electrical failure. All systems operated as designed and the pump will be replaced while the unit is in outage.

Units 2 and 4 are operating at full power. Unit 3 is in a planned station maintenance outage.

There was no impact on the safety of the public, employees or the environment.

Q3, 2015

[Sept. 30, 2015]: On the afternoon of Monday, Sept. 28, 2015, smoke caused by an electrical short on the conventional side of the Darlington Nuclear station activated the fire alarm system. Staff responded and resolved the electrical issue.

Units 1, 2, 3, and 4 are in a planned station maintenance (Vacuum Building) outage.

There was no impact on the safety of the public, employees or the environment.

[Sept. 22, 2015]: On Wednesday, Sept. 16, 2015, Unit 4 at the Pickering Nuclear Station was safety brought off-line for a forced outage after experiencing a failure in the turbine governor valve trip circuit. No radioactive systems are located in this area of the station. The unit reacted as expected and all of our safety systems performed as designed.

There was no threat to the safety of the public, employees or the environment. Notifications were made to the federal regulator, the Canadian Nuclear Safety Commission.

[Aug. 24, 2015]: On Friday, Aug. 21, 2015, emergency crews responded to a Darlington employee who had fallen and injured their shoulder in an office hallway.

[July 27, 2015]: On July 23, staff at Pickering Nuclear discovered the incorrect blocking and locking of a valve that is part of the guaranteed shutdown system. The valve was subsequently restored to service. All required notifications were made.

Q2, 2015

[May 19, 2015]: On May 16, staff at Pickering Nuclear discovered a sump pump had failed due to a faulty indication switch. The sump overflowed resulting in some sewage flowing into an inactive drain which leads to an on-site settling pond. The pond eventually drains to Lake Ontario, meaning some sewage may have made its way to the lake.

The sump pump is now being operated manually to ensure no further sewage enters the drain. All required notifications were made.

[April 15, 2015]: On April 14, 2015, during planned maintenance on Darlington's Unit 2 heavy water transfer system, a loss of heavy water occurred. The water was contained and recovered. Further investigations are underway.

As a precautionary measure, staff near the incident area assembled and were accounted for and the unit was safely shut down.

There was no impact to the health and safety of employees or the public and there was no impact on the environment. As per procedures, all required notifications were made to federal, provincial and municipal representatives.

Q1, 2015

[Jan. 30, 2015]: On Friday, Jan. 30, 2015, emergency crews responded to a medical emergency for a contractor working at Darlington Nuclear for a broken arm.

Q4, 2014

[Dec. 11, 2014]: On Dec. 10 during routine inspections, operations staff at Pickering Nuclear discovered oil leaking from a hose into a nearby floor drain. It is predicted that some oil made its way into the lake. An investigation is still underway; however the maximum amount of oil that could have travelled through the drain is 94 litres. This is a conservative estimate and further investigation will confirm the exact amount. This posting will be updated when further information is available. All required notifications were made.

[Nov. 24, 2014]: Pickering's Unit 7 is currently shut down for a maintenance outage. On Nov. 21 during planned maintenance, a valve on the moderator system opened inside the reactor building. The leak was contained within the building and there was no impact to station staff, the public or the environment. As per procedures, the event was reported to the municipality and both the federal and provincial governments. The cause of the leak is under investigation. The unit has been returned to its pre-event condition.

Q3, 2014

[Sept. 15, 2014]: On Sept. 11, staff at Pickering Nuclear received an equipment signal indicating the failure of sump pumps in the site sewage system. Staff attempted to restore the pumps, a portable pump was installed, and a septic truck was brought in to manually drain the sewage tanks. Unfortunately, the sumps overflowed while pump capacity was being restored resulting in the flow of some sewage out of the sumps and into an inactive drain, which eventually leads to Lake Ontario. It is estimated approximately 200 kgs may have been discharged to the environment. All required notifications were made.

[Sept. 5, 2014]: On Aug. 29, during routine inventory inspections, OPG staff discovered materials that had not been accurately recorded on an inventory list required to be updated annually under OPG's radiation protection program.

The items were mock fuel bundles for training and demonstration purposes that contained a small amount of natural uranium. They posed no health risk to staff or any member of the public and were locked in a secure area at all times.

OPG is reviewing the internal inventory and reporting process, and has provided a courtesy notification to the Canadian Nuclear Safety Commission.

[Aug. 18, 2014]: On Aug. 15, 2014, during routine equipment testing at Ontario Power Generation's Pickering station, approximately 450 litres of fire retardant fluid was spilled inside the turbine hall. Almost all of the fluid was contained and collected. However, subsequent testing showed a trace amount had

made its way to a drainage sump which eventually leads to Lake Ontario. The trace amount detected through testing is much lower than allowable regulatory limits.

All required notifications were made including to the Ministry of Environment.

[Aug. 12, 2014]: On Aug. 8, 2014, Ontario Power Generation's Pickering staff were filling a tank with heavy water when approximately 500 ml was released through a valve. Staff contained the water, cleaned the area and repaired the valve. There was no impact to employees and no release to the environment.

[Aug. 07, 2014]: During routine testing, Ontario Power Generation's Darlington Nuclear staff identified a release of generator seal oil to Lake Ontario from a Unit 3 heat exchanger that is part of the non-nuclear systems. The source of leak was identified and had been immediately isolated. There was no radiological release to the environment.

OPG has notified the appropriate provincial agencies, local water plants, and the Canadian Nuclear Safety Commission.

Q2, 2014

[June 19, 2014]: On June 18, Darlington Nuclear experienced an unintended release of demineralised water with trace amount of hydrazine to Lake Ontario from equipment that is part of the non-nuclear systems. The release has been stopped at source. This minor release resulted in no impact to the environment and there was no radiological release to the environment.

As per procedure, OPG has notified the appropriate provincial agencies, local water plants, and the Canadian Nuclear Safety Commission.

[May 9, 2014]: During routine testing, Ontario Power Generation's Darlington Nuclear staff identified a release of Fire Retardant Fluid (oil) to Lake Ontario from a Unit 4 heat exchanger that is part of the non-nuclear systems. The source of the release has been identified and closed. This minor release resulted in negligible environmental impact and there was no radiological release to the environment.

OPG has notified the appropriate provincial agencies, local water plants, and the Canadian Nuclear Safety Commission.

[May 8, 2014]: The Tritium Removal Facility (TRF) located at Darlington Nuclear has been shutdown to undergo a maintenance outage to repair refrigeration equipment which is used to keep systems at very low temperatures. The shutdown was due to a minor release of refrigerant.

As per procedure, OPG notified the local water supply plant and the Ministry of Environment as a reportable spill, classified as less serious. There were no impacts to the environment or any radiological release.

[May 5, 2014]: Approximately 0.5 litres of heavy water was spilled near the Pickering Unit 1 reactor building when operators were replacing an equipment hose. All liquid was recovered and the area cleaned. There was no injury to employees and no impact on the public or environment.

[Apr. 29, 2014]: Operators at the Pickering station made the conservative decision to shut down the reactor in order to investigate the cause of instrumentation fluctuations for reactor moderator system on Unit 1.

There was no threat to the safety of the public, employees or the environment. Notifications were made to the federal regulator, the Canadian Nuclear Safety Commission.

[Apr. 15, 2014]: Darlington Application to Renew Environmental Compliance Approval (ECA) for Air Emissions.

The Ontario Ministry of Environment (MOE) has received public comments regarding an OPG application to renew the ECA for air emissions at Darlington Nuclear Generating Station. OPG has reviewed these comments and [provided clarification to the MOE](#) to support the application.

Q1, 2014

[Mar. 21, 2014]: On Mar. 20 at OPG's Pickering station, workers discovered an oily substance entering the lake near the station outflow at a rate of approximately 0.5 litre per hour. A “boom” was installed around the affected area to collect the substance. Investigations into the original source of the discharge is underway.

Notifications were made to the Ministry of Environment and Region of Durham Works department.

[Feb. 18, 2014]: On Feb. 14 at OPG's Pickering station, it was discovered that a pipe carrying sewage had released some contents which entered the site drainage system through a floor drain. Upon discovery, the pipe was repaired. However, some sewage had likely made its way through the site drainage system to the lake.

[Jan. 15, 2014]: On Jan. 14, 2014, approximately 200 kg of heavy water was released onto the floor of the Unit 4 reactor building at the Pickering station during the transfer of liquid between two tanks. The heavy water was contained and clean up and recovery was immediately initiated.

There was no release to the environment and no impact on the safety of employees.

[Jan. 6, 2014]: On Jan. 4, a spill of domestic water mixed with oil occurred in a site storage building at Pickering Nuclear. Clean up of the liquid began immediately upon discovery, however some may have travelled through the site sewage drain system and, eventually, to the local sewage treatment plant.

Q4, 2013

[Nov. 18, 2013]: On Nov. 16 a discharge of lubricating oil on Unit 5 was discovered on a heat exchanger on the conventional side of the Pickering station. No radioactive systems are located in this area of the station. The equipment has been removed from service to prevent further discharge. Investigation determined that approximately 750 litres of oil may have entered the lake over a period of approximately three weeks.

[Oct. 7, 2013]: During routine testing, Ontario Power Generation's Darlington Nuclear staff identified a small release of seal oil (similar to auto oil) to Lake Ontario from equipment that is part of the non-nuclear systems. The source of the release has been identified and closed. This minor release resulted in negligible environmental impact and there was no radiological release to the environment. OPG has notified the appropriate provincial agencies, local water plants, and the Canadian Nuclear Safety Commission.

Q2, 2013

[June 18, 2013]: On Wednesday, June 5, Pickering Units 1 and 4 were safely taken off-line for short maintenance outages. The outages were taken in order to conduct unplanned equipment inspections inside the reactor building after an issue with several electrical connectors was identified. The units will restart upon completion of these inspections.

Pickering Units 6, 7 and 8 are operating at 100 per cent full power. Unit 5 is in a planned maintenance outage.

[May 6, 2013]: On Saturday May 4, Darlington Unit 4 was safely taken off-line for a short maintenance outage. The outage was due to a connection problem on the main output transformer. Station

maintenance staff are investigating and repairing the connection. Darlington Units 1, 2 and 3 are operating at 100 per cent full power.

[Apr. 5, 2013]: On April 2, 2013, Ontario Power Generation's Darlington Nuclear Generating Station released up to 10 litres of oil to the environment. The minor release occurred from equipment that is part of the non-nuclear systems.

The source of the release has been identified and repaired. This minor release resulted in no environmental impact and there was no radiological release to the environment.

OPG has notified the appropriate provincial agencies, local water plants, and the Canadian Nuclear Safety Commission.

Q1, 2013

[Jan. 2, 2013]: On the night of Jan. 1, 2013, a fire was safely extinguished in a lube oil purification system in the Pickering Nuclear Unit 1 turbine hall.

The station's automatic sprinkler system was activated and the fire was extinguished by Pickering Nuclear fire protection personnel. City of Pickering Fire Department personnel also reported to site and assisted with ventilation.

There were no employee injuries and an investigation has been launched to determine the cause of the fire and assess required repairs. There are no community safety concerns.

Unit 1 was already shut down and undergoing a planned maintenance outage. The lube oil purification system provides clean cooling lubrication oil for the turbine bearings. It is located on the conventional side of the station. The other units were not affected and continued operation.

OPG has notified the appropriate provincial agencies, the Canadian Nuclear Safety Commission, and community stakeholders.

Q4, 2012

[Dec. 18 2012]: On Dec. 17, 2012, following a planned maintenance outage of Ontario Power Generation's Pickering Nuclear Unit 7, a steam leak was detected in the turbine hall while the unit was being returned to full power. Power was dropped from 50 per cent of full power to 10 per cent, and the steam leak stopped.

The source has been identified as a moisture separator. The unit has been shut down and necessary repairs are being completed. The event posed no environmental or community safety concern.

[Oct. 12, 2012]: On Oct. 11, 2012, Ontario Power Generation's Pickering Nuclear had a spill of approximately 400 litres of moderator water. The spill was entirely contained within the station and there was no release to the environment.

An employee working on the cleanup received an exposure of approximately 3.5 millisieverts, a dose that is not detrimental to health.

The source of the spill has been identified and closed, all of the water has been recovered, and the employee remains at work. OPG has notified the appropriate provincial agencies and the Canadian Nuclear Safety Commission.

Q3, 2012

[Sept. 5, 2012]: On the morning of Sept. 5, 2012, Ontario Power Generation's Darlington Nuclear Unit 1 was safely shut down as per procedure after operators detected the unusual operation of a heat transport pressurizing pump. Subsequent investigation identified the cause to be a failed air supply valve. There was no impact on employee or public safety and there was no environmental impact. OPG has notified the appropriate provincial agencies, and the Canadian Nuclear Safety Commission.

[Aug. 20, 2012]: Between August 16 and 17, Ontario Power Generation's Pickering Nuclear had a release of up to 150 litres of oil to Lake Ontario. The minor release occurred overnight from equipment that is part of the non-nuclear systems. The source of the release has been identified and closed. This minor release resulted in no environmental impact and there was no radiological release to the environment. OPG has notified the appropriate provincial agencies, local water plants, and the Canadian Nuclear Safety Commission.

[July 9, 2012]: Between June 30 and July 5, Ontario Power Generation's Pickering Nuclear had a release of approximately 90 litres of oil to Lake Ontario. The minor release occurred over a period of six days from cooling equipment that is part of the non-nuclear systems.

The source of the release has been identified and closed. This minor release resulted in no significant environmental impact and there was no radiological release to the environment. OPG has notified the appropriate provincial agencies, local water plants and the Canadian Nuclear Safety Commission.

Q2, 2012

[June 5, 2012]: A number condenser cleaning balls were inadvertently discharged into Lake Ontario from the Pickering Nuclear station. Cleaning balls are made of organic material and pose no threat to the environment or wildlife. [Click here for details.](#)

[Apr. 30, 2012]: As one step towards enhancing OPG's security and fitness for duty policies, there will be security dogs working at the Darlington and Pickering stations beginning April 30, 2012.

[Apr. 18, 2012]: Early in the morning on April 18, Emergency crews responded to a medical emergency at Darlington Nuclear Generating Station. An employee at the site collapsed and was transported to a local hospital, where he was pronounced dead. The fatality is not work-related and is the result of natural causes. Regulatory authorities have been notified.

Q3, 2011

On Friday, Sept. 9, the Darlington planned outage gets underway. This brief outage will address a passing valve from the Unit 1 heat transport system into the collection system. A pro-active decision was made to take the unit off-line to fix this problem prior to reaching any required shutdown limits.

Q2, 2011

The Canadian Nuclear Safety Commission (CNSC) has requested that all Canadian nuclear power plant licensees continue regular radiation monitoring of air, land and water at plant sites as part of their ongoing operations, and report to the CNSC on specific radioisotopes that would indicate any changes from normal background levels that may be a result of the incident at the Fukushima Daiichi Nuclear Power Station in Japan. [Click here to read about Pickering and Darlington Reporting to the CNSC.](#)

Q1, 2011

[Mar. 26, 2011]: On Mar. 25, Pickering Nuclear experienced a brief partial loss of power on its Unit 1 reactor, while performing start up activities.

Standby systems automatically restored the power, with no impact on employee, public or equipment safety. Pickering's operating staff responded according to procedure and notified the proper authorities of this low level, but reportable event. Start up activities resumed on Unit 1, following a maintenance outage. Pickering Units 4, 6, 7 and 8 are all operating at or near full power, while planned maintenance outage work on Unit 5 continues.

[Mar. 25, 2011]: Mark Elliot, Senior Vice President, Nuclear Engineer and Chief Nuclear Engineer responds to CNSC request pursuant to subsection 12(2) of the General Nuclear Safety and Control Regulations: Lessons Learned from Japanese Earthquake. [Read more and visit the Japan Earthquake web page.](#)

[Mar. 15, 2011]: On March 14 Pickering Nuclear had an unintended water release into the environment. The event was a low level regulatory event with only negligible effect to the environment and no public health implications.

A pump seal failure at the Pickering Nuclear A station released an estimated 73,000 litres of filtered water to Lake Ontario on March 14. (This is a conservative estimated calculation for the maximum possible release.) The release was attributed to a faulty pump seal. The release was immediately stopped upon discovery and the pump seal is being replaced.

The filtered (demineralised) water contained trace amounts of tritium, far below any regulatory limits. Routine content of tritium in water at local water treatment plants is generally between six and 10 becquerels per litre some of which is naturally occurring in Lake Ontario and some from the nuclear station and other sources. The estimates of the maximum potential impact of this release means a tritium increase of .56 becquerels per litre, still well within normal range.

The provincial standard for tritium in drinking water is 7,000 becquerels per litre. All appropriate regulatory agencies and stakeholders were notified.

From a regulatory perspective, this is a very low level event. There is no impact to quality of drinking water.

[Mar. 7, 2011]: Unit 4 at Pickering Nuclear was safely shut down on Feb. 24, 2011 to allow replacement of a degraded seal on a moderator system pump. A public notification of this shutdown was issued. Following the unit shutdown, station staff identified that the pump seal had begun releasing some moderator water inside the moderator room and then into a sump designed for water collection in this kind of event. This occurred within the reactor building. They immediately took action to stop the release and to begin recovering the water which contained some tritium.

Testing confirmed tritium emissions remained within normal weekly range and well below any regulatory limit. The event did not trigger any emergency notification levels. The unit is expected to return to service later this month.

Ontario Power Generation adheres very closely to the principles of a strong Nuclear Safety Culture as laid out in best practices by the Institute of Nuclear Power Operations (INPO) organization. Principle #4 of a strong nuclear safety culture is, "Decision making reflects safety first."

During the shutdown, as a precautionary measure and to ensure a focused response to the pump seal release, the Pickering A Shift Manager activated Pickering Nuclear's Site Management Centre (SMC), a cross-functional team of specially-trained issue response experts from different areas of the nuclear organization, to provide technical support to the crew. While this team also responds in emergency situations, in this case the team was providing technical assistance, not emergency response. Excellent support was provided by the entire organization and the issue was resolved in a timely manner.

**For more information on the station updates listed, please contact:
Kevin Powers, Director - Public Affairs at (416) 592-8470.**